

Mr. Gregory E. Keeker  
Starke County Humane Society  
0104 S. R. 10 N.  
Judson, IN 46366

Dear Mr. Keeker:

Re: Exempt Construction and Operation Status,  
149-15079-00025

The application from Starke County Humane Society, received on October 19, 2001, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following emission unit, to be located at 0104 S. R. 10 N., Judson, Indiana, is classified as exempt from air pollution permit requirements:

(a) A crematory incinerator for animal remains, capacity of one hundred (100) pounds an hour, supplemented by natural gas at a rate of 0.7 million BTU/hr.

The following conditions shall be applicable:

- (1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:
  - (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
  - (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.
- (2) Pursuant to 326 IAC 4-2-2, the crematory incinerator shall:
  - (1) consist of primary and secondary chambers or the equivalent;
  - (2) be equipped with a primary burner unless burning wood products;
  - (3) comply with 326 IAC 5-1 and 326 IAC 2;
  - (4) be maintained properly as specified by the manufacturer and approved by the commissioner;
  - (5) be operated according to the manufacturer's recommendations and only burn waste approved by the commissioner.
  - (6) comply with other state and/or local rules or ordinances regarding installation and operation

of incinerators.

Starke County Humane Society  
Starke County, Indiana

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- (7) be operated so that emissions of hazardous material including, but not limited to, viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;
- (8) not emit particulate matter in excess of five-tenths (0.5) pounds of particulate matter per one thousand (1000) pound of dry exhaust gas at standard conditions corrected to fifty percent (50%) excess air;
- (9) not create a nuisance or a fire hazard.

The operation of this incinerator shall be terminated immediately upon noncompliance with any of the above mentioned requirements.

This exemption is the first air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Quality

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cc: File - Starke County  
Starke County Health Department  
Air Compliance - Rick Reynolds  
Permit Tracking - Janet Mobley  
Technical Support and Modeling - Michele Boner  
Compliance Data Section - Karen Nowak

# **Indiana Department of Environmental Management Office of Air Quality**

## **Technical Support Document (TSD) for an Exemption**

### **Source Background and Description**

Source Name:	Starke County Humane Society
Source Location:	0104 S. R. 10, North Judson, IN 46366
County:	Starke
SIC Code:	7261
Operation Permit No.:	149-15079-00024
Permit Reviewer:	Madhurima D. Moulik

The Office of Air Quality (OAQ) has reviewed an application from Starke County Humane Society relating to the construction and operation of an incinerator for an animal crematorium.

### **New Emission Units and Pollution Control Equipment**

The source plans to construct the following emission unit:

- (a) One (1) DriAll model 200 incinerator for the cremation of pets, with a maximum capacity of 100 pounds per hour, using natural gas as supplemental fuel, at the rate of 0.7 million BTU per hour.

### **Enforcement Issue**

There are no enforcement actions pending.

### **Recommendation**

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on October 19, 2001. Additional information was received on November 26, 2001.

### **Emission Calculations**

See Appendix A of this document for detailed emissions calculations.

### **Potential To Emit**

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational

design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	1.5
PM-10	1.5
SO <sub>2</sub>	0.5
VOC	0.7
CO	2.5
NO <sub>x</sub>	1.0

HAP's	Potential To Emit (tons/year)
Single HAP	Negligible
Combination of HAPs	Negligible

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of VOC, NO<sub>x</sub>, and SO<sub>2</sub> are less than 25 tons per year each, as well as less than 5 tons per year of PM and PM-10, and less than 25 tons per year of CO. Therefore, pursuant to 326 IAC 2-1.1-3(d)(1), the source will be granted an exemption.

### County Attainment Status

The source is located in Starke County.

Pollutant	Status
PM-10	Attainment
SO <sub>2</sub>	Attainment
NO <sub>2</sub>	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the ozone standards. Starke County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Starke County has been classified as attainment or unclassifiable for PM-10, SO<sub>2</sub>, CO, and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

### Federal Rule Applicability

- (a) The incinerator has a charge rate of less than fifty (50) tons per day. Therefore, it is not subject to the requirements of the New Source Performance Standard, (326 IAC 12, 40 CFR 60.50, Subpart E).

- (b) The crematory incinerator does not combust any hazardous waste as defined in 40 CFR 261. Therefore, the incinerator is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs)(40 CFR 63, Subpart EEE).

#### **State Rule Applicability - Entire Source**

##### **326 IAC 2-6 (Emission Reporting)**

This source is not subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit less than one hundred (100) tons per year of any pollutant.

##### **326 IAC 5-1 (Opacity Limitations)**

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

#### **State Rule Applicability - Individual Facilities**

##### **326 IAC 4-2-2 (Incinerators: requirements)**

Pursuant to 326 IAC 4-2, the incinerators shall:

- (a) Consist of primary and secondary chambers or the equivalent;
- (b) Be equipped with a primary burner unless burning wood products;
- (c) Comply with 326 IAC 5-1 and 326 IAC 2;
- (d) Be maintained properly as specified by the manufacturer and approved by the commissioner;
- (e) Be operated according to the manufacturer's recommendations and only burn waste approved by the commissioner;
- (f) Comply with other state and/or local rules or ordinances regarding installation and operation of incinerators;
- (g) Be operated so that emissions of hazardous material including but not limited to viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;
- (h) Not emit particulate matter in excess of three-tenths (0.5) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas at standard condition corrected to fifty percent (50%) excess air; and
- (i) Not create a nuisance or fire hazard.

If any of the above result, the burning shall be terminated immediately.

The manufacturer's guaranteed particulate emission rate for the incinerators is 0.375 pounds of particulate per 1,000 pounds of dry exhaust gas, corrected to 50% excess air; therefore, the new incinerators will be in compliance with 326 IAC 4-2-2.

#### 326 IAC 6-3-2 (Process Operations)

Incinerators are exempt from 326 IAC 6-3-2. Therefore, this rule does not apply.

#### **Conclusion**

The construction and operation of this animal cremation incinerator shall be subject to the conditions of the attached proposed Exemption No. 149-15079-00024.

**Appendix A: Emissions Calculations****Natural Gas Combustion Only****MM BTU/HR <100****Small Furnace****Company Name: Starke County Humane Society****Address City IN Zip: 0104 S. R. 10, North Judson, IN 46366****CP: 149-15079****Plt ID: 149-00025****Reviewer: Madhurima D. Moulik****Date: October 30, 2001**Heat Input Capacity  
MMBtu/hrPotential Throughput  
MMCF/yr

0.7

6.1

Pollutant						
Emission Factor in lb/MMCF	PM* 7.6	PM10* 7.6	SO2 0.6	NOx 100.0 **see below	VOC 5.5	CO 84.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.3	0.0	0.3

\*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations****Natural Gas Combustion Only****MM BTU/HR <100****Small Furnace****Company Name: Starke County Humane Society****Address City IN Zip: 0104 S. R. 10, North Judson, IN 46366****CP: 149-15079****Plt ID: 149-00025****Reviewer: Madhurima D. Moulik****Date: October 30, 2001****HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	6.439E-06	3.679E-06	2.300E-04	5.519E-03	1.042E-05

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	1.533E-06	3.373E-06	4.292E-06	1.165E-06	6.439E-06

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.



**Appendix A: Emission Calculations  
Incinerator**

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**Company Name: Starke County Humane Society**  
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**Date: October 30, 2001**

THROUGHPUT
lbs/hr
100

THROUGHPUT  
ton/yr  
438

	POLLUTANT				
	PM	SO2	CO	VOC	NOX
Emission Factor in lb/ton	7.0	2.5	10.0	3.0	3.0
Potential Emissions in ton/yr	1.5	0.5	2.2	0.7	0.7

**Methodology**

Emission factors are from AP 42 (5th Edition 1/95) Table 2.1-12, Uncontrolled emission factors for industrial/commercial refuse combustors, multiple chambers

Throughput (lb/hr) \* 8760 hr/yr \* ton/2000 lb = throughput (ton/yr)

**Total Emissions**

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**Emissions in Tons Per Year**

Emission Unit	PM	PM-10	SO2	NOx	VOC	CO
Incinerator	1.5	1.5	0.5	0.7	0.7	2.2
Furnace (supplemental fuel)	0	0	0	0.3	0	0.3
<b>Total Emissions (tons/yr)</b>	<b>1.5</b>	<b>1.5</b>	<b>0.5</b>	<b>1</b>	<b>0.7</b>	<b>2.5</b>